

Work Order ID 152618***152618***

Page 1

Tuesday, November 01, 2016 1:34:50 PM

Item ID: D6101-015 Accept ***N900040100*** Setup Start ***NS1***
Revision ID: Stop ***NS2***
Item Name: Saddle Billet
Start Date: 11/3/2016 Start Qty: 10.00 ***10*** Cust Item ID:
Required Date: 11/17/2016 Req'd Qty: 10.00 ***10*** Customer:
Reference:

Approvals: Process Plan: **DAS 21** Date: **NOV 01 2016** Tooling: Date: Run Start ***NR1***
QC: **9-89** Date: SPC (Y/N): Date: Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
Draw Nbr	Revision Nbr								
D6101	B								
100	PURCHASING	0.00							DAS 13 9-89
100									
Purchasing	Memo	0.00							
Purchasing	Issue P/O: 34163								
	a) Description: Alluminum billet								
	b) 9.450" x 6.250" x 2.50" thick (+0.030 / -0.000)								
	c) Tolerance on all dimensions are +0.030"/-0.000"								
	d) Grain direction along 9.450" length								
	e) Material: 7075-T7351 (QQ-A-250/12)								
	f) Material certification required								
110	Receive & Inspect for Damage & Mat'l Certs	0.00							
110									
Packaging	Memo	0.03							
Packaging	Ensure material certification is attached								

10x 8/16-11-21

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS <table style="width:100%; border: none;"> <tr> <td style="border: none;">Skid-tube ☐</td> <td style="border: none;">Cross tube ☐</td> <td style="border: none;">Water Jet ☐</td> <td style="border: none;">Engineering ☐</td> </tr> <tr> <td style="border: none;">Machining ☐</td> <td style="border: none;">Small Fab ☐</td> <td style="border: none;">Prod. Eng. Coord. ☐</td> <td style="border: none;">Quality ☐</td> </tr> <tr> <td style="border: none;">Thermoforming ☐</td> <td style="border: none;">Finishing ☐</td> <td style="border: none;">Rec/Store/Packaging ☐</td> <td style="border: none;">Other ☐</td> </tr> <tr> <td style="border: none;">Large Fab ☐</td> <td style="border: none;">Composite ☐</td> <td style="border: none;">Supplier ☐</td> <td></td> </tr> </table>						Skid-tube ☐	Cross tube ☐	Water Jet ☐	Engineering ☐	Machining ☐	Small Fab ☐	Prod. Eng. Coord. ☐	Quality ☐	Thermoforming ☐	Finishing ☐	Rec/Store/Packaging ☐	Other ☐	Large Fab ☐	Composite ☐	Supplier ☐	
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Start Date: 11/3/2016 Start Qty: 10.00 ***10*** Cust Item ID:
Required Date: 11/17/2016 Req'd Qty: 10.00 ***10*** Customer:
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Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____ Run Start ***NR1***
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Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
120	QC6- Inspect dimensions to drawing	0.00				10	0		DAS 14 9-89 16/11/22
120									
QC	Memo	0.00							
Quality Control	Ensure Material certification comply to Dwg D6101								
130	Identify as per dwg & Stock Location: MAT45	0.00				10	0		DAS 44 9-89 16-11-22
130									
Packaging	Memo	0.02							
Packaging	LOCATION: MAT045								
140	QC21- Final Inspection - Work Order Release	0.00							
140									
QC	Memo	0.17							DAS 21 9-89 NOV 23 2016
Quality Control									
									DAS 21 9-89 NOV 23 2016

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date :		Step #:		QTY Effective :			MRB (QSI042) Approval Completed By Lead hand / Supervisor Approval Verification QC / QA Coordinator Approval		
Description Work Order Deviation				Disposition					
Root Cause Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐ No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐		FAULT CATEGORY Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐ Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐ Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Mislabeled ☐ Fit/Function ☐ Misaligned/off center ☐ Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐		OTHER : ☐					

Picklist Print

Tuesday, November 01, 2016 1:34:53 PM

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Work Order ID: 152618

152618

Parent Item: D6101-015

D6101-015

Parent Item Name: Saddle Billet

Start Date: 11/3/2016

Required Date: 11/17/2016

Start Qty: 10.00

Required Qty: 10.00

Comments: IPP RevA: New issue DD verified by:EC

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
D6101-015P		Purchased	No			110	Each	0.0000	1	10			
D6101-015P									**				
ALUM BILLET													

10X SP/6-11-21.

DQA: _____ Date: _____



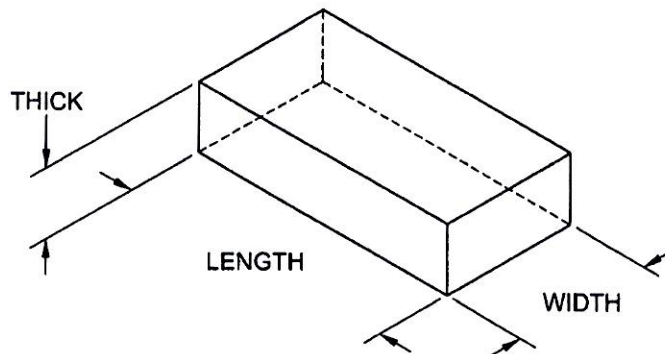
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OTHER :																									

SPECIFICATION CONTROL DRAWING



PURCHASE MATERIAL ACCORDING TO THE FOLLOWING TABLE. SPECIFY ALLOY, LENGTH x WIDTH x THICK (+0.030/-0.000), AND GRAIN DIRECTION AS SHOWN.

TOLERANCES ON ALL DIMENSIONS ARE +0.030/-0.000.

ALL DIMENSIONS ARE IN INCHES.

B ACCEPTABLE SPECIFICATIONS FOR 7075-T7351 ALUMINUM ARE AMS-QQ-A-250/12, QQ-A-250/12, OR ASTM B209

Part No.	Alloy	Length	Width	Thick	Grain Direction
D6101-001	7075-T7351 (QQ-A-250/12)	6.000	6.250	2.000	Along 6.000 Length
D6101-003	7075-T7351 (QQ-A-250/12)	7.875	6.250	2.000	Along 7.875 Length
D6101-005	7075-T7351 (QQ-A-250/12)	5.000	8.250	2.500	Along 5.000 Length
D6101-007	7075-T7351 (QQ-A-250/12)	7.750	8.250	2.500	Along 7.750 Length
D6101-009	7075-T7351 (QQ-A-250/12)	8.700	8.250	2.500	Along 8.700 Length
D6101-011	7075-T7351 (QQ-A-250/12)	9.700	8.250	2.500	Along 9.700 Length
D6101-013	7075-T7351 (QQ-A-250/12)	10.100	8.250	2.500	Along 10.10 Length
D6101-015	7075-T7351 (QQ-A-250/12)	9.450	6.250	2.500	Along 9.450 Length
D6101-017	7075-T7351 (QQ-A-250/12)	6.350	6.250	2.250	Along 6.350 Length

RELEASED
09/07/15/WP

SHOP COPY
RETURN TO
ENGINEERING
UNCONTROLLED COPY
SUBJECT TO AMENDMENT
WITHOUT NOTICE
WORK ORDER
NO. 152618 MCG
16-11-20

B	ADDED D6101-015/-017, ADD ASTM B209	RF	09.04.23
A	NEW ISSUE	CP	01.03.30
REV.	DESCRIPTION	BY	DATE
DESIGN	CP	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
DRAWN	RF		
CHECKED	<i>[Signature]</i>	DRAWING NO.	REV. B
MFG. APPR.	<i>[Signature]</i>	D6101	SHEET 1 OF 1
APPROVED	<i>[Signature]</i>	TITLE	SCALE
DE APPR.	<i>[Signature]</i>	SADDLE BILLET, 7075	NTS
DATE	09.04.23	COPYRIGHT © 2001 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.	



Dart Aerospace Ltd.
1270 Aberdeen Street
Hawkesbury, ON K6A 1K7
Tel: 613 632 9577
Fax: 613 632 1053

PURCHASE ORDER

Purchase Order ID PO34163

Purchase Order Date 11/3/2016

PO Print Date 11/3/2016

Page Number 1 of 3

Order From :

METAUX CASTLE
P.O. BOX 4090 STN A
TORONTO, ONTARIO M5W OE9
CANADA

VU-MET002

Ship To : DART AEROSPACE LTD
1270 ABERDEEN
HAWKESBURY, ON K6A 1K7
CANADA

E-MAILED

NOV 03 2016

Contact Name

Vendor Phone

Ship To Contact

Ship To Phone

Ship Via: Yours ppd

Ship Acct:

Buyer

Customer POID

Customer Tax #

Terms

Currency

FOB

Chantal Lavoie

10127-2607

Net 30

USD

Destination-Collect

Line Nbr	Reference Vendor Part Number	Description/ Mfg ID	Req Date/ Taxable	CD	Req Qty/ Unit of Measure	PO Unit Price	Extended Price
	Line Comments		Promise Date				
	Delivery Comments						
1	D6101-015P	ALUM BILLET	11/16/2016 Yes 11/16/2016		10.00 Each	\$52.00	\$520.00
	AS PER DWG D6101 REV. B B152618 size: 9.450" X 6.250" X 2.50" thick Tolerance on all dimensions are +0.030"/-0.000" Grain direction along 9.450" length Material: 7075-T7351 (QQ-A-250/12)						
	Line Total:						\$520.00
2	D6101-017P	ALUM BILLET	11/16/2016 Yes 11/16/2016		20.00 Each	\$32.15	\$643.00
	AS PER DWG D6101 REV. B B152619 SIZE: 6.350" X 6.250" X 2.250" THICK GRAIN DIRECTION ALONG 6.350" LENGHT MATERIAL: 7075-T7351 QQ-A-250/12 TOLERANCE AS PER QUOTE +.030"/-.000"						

Note:

11/3/2016



A. M. Castle & Co.

PACKING SLIP/
CERTIFICATE OF CONFORMANCE

Page 1 of 2

Shipment No:3131072

Ship From: A. M. CASTLE & CO. 2150 ARGENTIA ROAD MISSISSAUGA, ON L5N 2K7 CAN		Sold To: DART AEROSPACE LTD 1270 ABERDEEN HAWKESBURY, ON K6A 1K7 CA		Ship To: DART AEROSPACE LTD 1270 ABERDEEN HAWKESBURY, ON K6A 1K7 CAN		Deliver To: DART AEROSPACE LTD 1270 ABERDEEN HAWKESBURY, ON K6A 1K7 CA	
Date Shipped 18-NOV-16	F.O.B. ORIGIN	Freight Terms Prepaid		Carrier MANITOU LIN		BOL No 3131072-2	

Shipment Details	Final Destination Branch - TOR
-------------------------	---------------------------------------

Order No 4556094	Line No 1	Item No 752241:MO	Description 2.5000.PL.7075.T7351.ALUMINUM.USI.48.5000.144.5000 CUT 2SIDED TO 6.25 IN (+ .0310/- .0000 IN (GRAIN TO RUN ALONG 9.45")) X 9.45 IN (+ .0310/- .0000 IN (GRAIN TO RUN ALONG 9.45")) - ALUMINUM PLATE SAW SPECIFICATIONS: AMS-QQ-A-250/12				
Purchase Order No 34163		Part Number YOUR ITEM NUMBER: D6101-015		Ordered Qty 10.00 PCS		Invoice Qty 10.00 PCS	
Details		ALL PAPERWORK MUST FOLLOW ORDER / CUSTOMER MUST RECEIVE AT TIME OF DELIVERY ALL MATERIAL MUST HAVE IDENTIFYING MARKINGS EX:HEAT #S Email P/s and certs to: clavoie@dartaero.com END USER: DART AEROSPACE END USE: COMMERCIAL AIRCRAFT PARTS					
Delivery No. 120660253	Mill KAISER ALUMINUM	Heat Number 	Mech Id	PCS 10	Width (IN)	Length (IN)	Shipped Qty(LBS) 152.7121

These commodities/technologies are subject to US Export Administration & US State Dept. Regulations and, if intended for export, were/are exported thereunder. Diversion contrary to US Law is Prohibited.

We hereby certify the material covered by this certification conforms in accordance with the above specifications and has been found to meet the applicable requirements for the material, including any specifications forming a part of the description. Test reports are on file subject to examination. All claims for defective material are waived unless made in writing to A.M. Castle & Co. within 60 days of the shipment. Material cut to the correct size, or material cut by the customer cannot be returned.

These commodities, technology or software were exported from the United States in accordance with the Export Administration Regulations. Diversion contrary to US law prohibited.

Date Printed: 18-NOV-2016 03:47:38 PM



Castle Metals®

A. M. Castle & Co.

PACKING SLIP/
CERTIFICATE OF CONFORMANCE

Page 2 of 2

for credit.	
Reviewed by Authorized Castle Metals Representative:	Date: Name:

Chris Galt

NOV 18 2016



DAS
26
9-89

NOV 21 2016

SHIP TO: A M CASTLE & CO 3050 SOUTH HYDRAULIC WICHITA, KS 67216
SOLD TO: AM CASTLE & CO- SOLD TO 1420 KENSINGTON RD SUITE 220 OAK BROOK, IL 60523

KAISER
ALUMINUM
 Trentwood Works - Spokane, WA 99215
 Phone: (800) 367-2586

CERTIFIED TEST REPORT
 Serial Number
 4406332

CUSTOMER PO NUMBER: 346945	WORK PACKAGE: 752241	CUSTOMER PART NUMBER:	SHIP RUN/LOAD: 103459/9	GOVT CONTRACT NUMBER:
KAISER ORDER NO: 1200307	LINE ITEM: 1	SHIP DATE: 30-JAN-2016	ALLOY: 7075	CLAD: BARE
		TEMPER: T7351	PRODUCT DESCRIPTION: KaiserSelect Plate	
WEIGHT SHIPPED: 9038 LB	QUANTITY: 5 PCS EST.	TRUCK B/L #: 2058388	GAUGE: 2.5000 IN (63.5000 MM)	DIAMETER/WIDTH: 48.500 IN (1231.9 MM)
		LENGTH: 144.500 IN (3670.3 MM)		

MHU 1968585: LOT 161663B0: 2 pieces;
 MHU 1968588: LOT 161663B0: 2 pieces;
 MHU 1968591: LOT 161589B7: 1 pieces;

Certified Specifications

DAS
 14
 9-89 *16/11/22*

AMS 4078/RevJ
 ASTM B 209/Rev14
 BSS 7055/RevB
 DPS 4.713/RevAK
 MMS 159/RevT

AMS-QQ-A-250/12/RevA
 ASTM B 594/Rev13
 CMMP 025/RevU
 GAMPS 9101/RevB/AmdSCN1
 PS 21211/RevP

AMS-STD-2154/RevA
 BAC 5439/RevJ
 CSTI 008/RevE
 GSS16100/RevG/Amd1

Test Code: 4297

Test Results

Lot: 161589B7 Cast 123 Drop 04 Ingot 2 Melted in USA

(ASTM E8/B557)
 (EN 2002-1)

Tensile:	Temper	Dir / # Tests	Ultimate KSI (MPA)	Yield KSI (MPA)	Elongation %
	T7351	LT / 2 (Min:Max)	71.1 : 71.1 (490 : 490)	60.1 : 60.4 (414 : 416)	11.4 : 11.6

(ASTM E1004)
 (EN 2004-1)

Conductivity %IACS :	40.2 Min	40.3 Max
(MS/M) :	23.3 Min	23.4 Max

(ASTM E1251)

Chemistry:	SI	FE	CU	MN	MG	CR	ZN	TI	V	ZR	OTHER
Actual(wt%)	0.08	0.18	1.4	0.03	2.5	0.19	5.7	0.03	0.01	0.01	TOT 0.05



KAISER ALUMINUM

Trentwood Works - Spokane, WA 99215
Phone: (800) 367-2586

CERTIFIED TEST REPORT

Serial Number
4406332

Lot: 16166380 Cast 120 Drop 08 Ingot 1 Melted in USA

(ASTM E8/B557)
(EN 2002-1)

Tensile:	Temper	Dir / # Tests	Ultimate KSI (MPA)	Yield KSI (MPA)	Elongation %
	T7351	LT / 2 (Min:Max)	70.2 : 72.3 (484 : 499)	59.3 : 62.0 (409 : 427)	11.3 : 11.4

(ASTM E1004)
(EN 2004-1)

Conductivity %IACS :	40.0 Min	40.2 Max
(MS/M) :	23.2 Min	23.3 Max

(ASTM E1251)

Chemistry:	SI	FE	CU	MN	MG	CR	ZN	TI	V	ZR	OTHER
Actual(wt%)	0.08	0.19	1.5	0.04	2.5	0.21	5.7	0.04	0.01	0.01	TOT 0.05

ALLOY LIMITS

	SI	FE	CU	MN	MG	CR	ZN	TI	V	ZR	OTHER	MAX
7075												
MIN(wt%)	0.00	0.00	1.2	0.00	2.1	0.18	5.1	0.00	0.00	0.00	EACH	0.05
MAX(wt%)	0.40	0.50	2.0	0.30	2.9	0.28	6.1	0.20	0.05	0.05	TOT	0.15

Aluminum Remainder

ORDER COMMENTS

AMC CA-15413B R 6
AMS 4078,AMS QQ-A-250/12,AMS STD-2154,A
STM B209,ASTM B594,BS
S 7055,CMMP 025,CSTI 006,DPS 4.713,GAMP
S 9101,MMS 159,PS 212

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TEST NOTES

Metal represented by this test report was 100% Type I
(immersion) ultrasonically tested from one side with 3mm
dead zones top and bottom and meets the Class A and Class B
requirements of all specifications referenced on this test
report. No surface marking of sonic indications is
performed.



KAISER ALUMINUM

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CERTIFIED TEST REPORT

Serial Number
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CERTIFICATION

Kaiser Aluminum Fabricated Products, LLC (Kaiser), is ISO 9001:2008/AS9100C certified and hereby certifies that all material shipped under this order:

- has been inspected, tested, and found to be in conformance with the requirements of the specifications indicated herein. For material thicknesses outside specification limits, mechanical properties etc. as shown herein and chemical composition meets specification requirements.
- was melted in the United States of America or a qualifying country per DFARS 225.872-1 (a), was manufactured in the United States of America, and meets the requirements of DFARS 252.225 for domestic content.
- has been thermally processed in compliance with AMS 2772, where applicable.
- is mercury free, within the limits of detection of ASTM E1251 (≤ 1 ppm).
- is in compliance with RoHS 2, European Union Directive 2011/65/EU.
- is in compliance with and regularly monitors any updates to the European Chemical Agency, ECHA, REACH regulations, (EC) n°1907/2006.
- is free of Conflict Minerals, as defined in Section 15.2 of the Dodd-Frank Act.

Any warranty is limited to that shown on Kaiser Aluminum's standard general terms and conditions of sale. Test reports are on file, subject to examination. Test reports shall not be reproduced except in full, without the written approval of the Kaiser Aluminum laboratory. The recording of false, fictitious or fraudulent statements or entries on the certificate may be punished as a felony under federal law.



JAMES HEMENWAY, LABORATORIES SUPERVISOR



MATERIAL RECEIPT INSPECTION FORM

MATERIAL: D6101-015
 DATE: 12/11/22

PO / BATCH NO.: 34163/152618

MATERIAL CERT REC'D: yes
 QUANTITY RECEIVED: 10
 QUANTITY INSPECTED: 10
 QUANTITY REJECTED: _____

THICKNESS ORDERED: 2.500
 THICKNESS RECEIVED: 2.530
 SHEET SIZE ORDERED: _____
 SHEET SIZE RECEIVED: _____

DESCRIPTION	NCR (Check Y/N)		COMMENTS
SURFACE DAMAGE	Y	☒ N	
CORRECT FINISH	☒ Y	N	
CORROSION	Y	☒ N	
CORRECT GRAIN DIRECTION	☒ Y	N	
CORRECT MATERIAL	☒ Y	N	7075-T7351
CORRECT THICKNESS	☒ Y	N	2.500
PHOTO REQUIRED	Y	☒ N	
CORRECT MATERIAL	☒ Y	N	AMS-QQ-A-250/2
CORRECT REF # TO LINK CERT	☒ Y	N	HEAT#16166380
CORRECT MATERIAL IDENTIFICATION	☒ Y	N	D6101-015
CORRECT M# ON THE MATERIAL	☒ Y	N	B152618
DOES THIS MATERIAL REQUIRE ENGINEERING SIGN OFF	Y	☒ N	
DOES THIS REQUIRE AN EXTRUSION REPORT	Y	☒ N	

CUT SAMPLE PIECE OF MATERIAL AND PREFORM A HARDNESS CHECK. RECORD RESULTS BELOW				
TYPE OF MATERIAL	HRC	HRB	DUR A	DUR D
SIZE OF TEST SAMPLE				
HARDNESS / DUROMETER READING				

testers located in the Quality Office

QC 18 INSPECTION	ENGINEERING SIGNOFF (if required)
INSPECTED BY: <u>DAS 14 9-09</u> DATE: <u>12/11/22</u>	SIGNED OFF BY: _____ DATE: _____

Attach this inspection sheet with the corresponding material cert and remit to be scanned and received in